



## **INVENTION CLAIM FOR UTILITY PATENT**

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### **WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER CLEANOUT AND SPEED CONTROL**

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### **Abstract**

This invention has a unique, new way to drive the "electric" type shavers a miniature water turbine.

The water pressure driven shaver uses the water from the faucet as a "parasite ", free power source from the bathroom or the shower outlet with a diverter to rotate the turbine.

It uses no electricity, cost effective, it is waterproof, it is submergible.

The water on/off valve by controlling the flow becomes the Speed Control of the Water Pressure Driven Wet and Dry shaver. It is adaptable to most prior art circular rotating and flat vibrating type shavers with or without beard trimming. After shaving, the new innovating built in water jet nozzle flushes out hair particles at flushing outlets. Shaver turbine may be positioned horizontally for circular or side ways for flat shaver.

**WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER CLEANOUT AND SPEED CONTROL**

**Inventor:** Zoltan Egeresi, 5500 Coast Rd. Santa Cruz, CA. USA

**DESCRIPTION OF PRIOR ART**

United States Patent 4,549,352 Ochiai , et al. October 29, 1985 Washable electric shaver.

A washable electric shaver comprising a water-tight housing having a drive motor therein and a switch.

This invention is directed to a dry shaving apparatus with a housing in which an electric drive mechanism

United States Patent 5,299,354 Metcalf , et al. April 5, 1994 Oscillating shaver

An oscillating wet shave razor with a battery powered motor rotating an eccentric element within the head portion of the razor handle to generate an oscillating vibration to the razor blade cartridge.

United States Patent 5,544,415 Huang August 13, 1996 Water-proof and washable electric razor.

A structure of an electric water-proof detachable and washable razor has a unit of detaching blades and a unit of water-proof shells for receiving a battery, a motor, a switch.

United States Patent 5,649,556 Braun July 22, 1997 Cleaning device for cleaning the shaving head of a dry shaving apparatus. The invention is directed to a cleaning device for cleaning the shaving head of a dry shaving apparatus with a cradle structure adapted to receive the shaving head , a cleaning fluid container holding a cleaning fluid, as well as a device adapted to be driven by a motor for feeding the cleaning fluid. .

United States Patent 5,933,962 by Labarbara August 10, 1999 Oscillating razor is a detachable oscillating unit is provided which converts a conventional wet shave razor, such as a disposable razor, into an oscillating wet shave razor. United States Patent 6,497,043 by Jacobsen December 24, 2002 Intelligent shaver, a shaving device with one or more shaving blades. Sensors are attached to (or near) the blades which produce a shaving signal. A processor or intelligent analysis unit then receives the shaving signal and determines what shaving changes should be made.

United States Patent 6,493,941 Wong December 17, 2002 Motor-driven razor uses a foil-type electric razor includes with a coaxial motor and cutter.

United States Patent 6,357,118 Eichhorn , et al. March 19, 2002 Electric razor.

Current U.S. Class: 134/92; 134/111; 134/166R; 134/186,

**WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER  
CLEANOUT AND SPEED CONTROL**

Field of Search: 134/111,155,186,92,184,166 C,166 R,201,62,116,135, 30/45,44,210,537,DIG. 1

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Intern'l Class: B08B 009/00, B26B 021/38

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No federally sponsored research or development was involved.

## **WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER CLEANOUT AND SPEED CONTROL**

### **BACKGROUND OF THE INVENTION**

Shavers come mainly in two categories. Wet, manual shaver with blades using some kind of a shaving cream or electric shavers. Electric shavers have either a round shaving head where the cutting blade is rotated, straight or angled or the flat type with oscillating or vibrating shaver head.

The electric razors use electricity, AC or DC with rechargeable batteries with limited charge / discharge cycle and some uses alkaline throw away batteries.

Life span of most shaver is reduced due to water incursion to the electric area, motor gets damp or wet, or rechargeable batteries are not easily replaceable and therefore it gets disposed prematurely.

Cleaning hair particles out of the razor screen area needs brushing, air blowing and in some newer shavers the motor has a better insulation from water, allowing water cleaning of detachable shaver head by way of using a brush or external water source. Shavers are not truly wet and dry types, they are wet or dry.

My new invention has a solution for these type of shortcomings. This Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control is a true wet and dry shaver.

My new invention has no electrical parts, 100 % waterproof, it is submergible, it uses no electricity, it uses free parasite power source (water pressure), no batteries need to be recharged or exchanged.

This new Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control is a true 100 % wet or dry shaver. Built in water nozzle flushes out hair particles solving prior arts' water intrusion problems into the motor, electrical area.

# **WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER CLEANOUT AND SPEED CONTROL**

## **SUMMARY OF THE INVENTION**

This invention has a unique, new way to drive the “electric” type shavers, miniature water turbine.

The water pressure driven shaver uses the water from the faucet in the bathroom or the shower outlet with a diverter to rotate the turbine while the water used for the turbine rotation remains clean and reusable.

This shaving device uses no electricity, environmental friendly, uses no alkaline or rechargeable batteries, only water in the home or in a hotel’s water system. The water volume adjustment is the shaver’s speed control which allows the user to adjust the shaver’s speed.

**The Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control** is a new way to power up the “electric” shavers, most prior art types are adaptable.

This invention solves the long time cleaning problem by allowing a built in water jet to rinse out the shaver from inside without destroying any component. **It is waterproof, it is submergible.**

In respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or as it is illustrated in the drawings.

## **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out and Speed Control**

### **OBJECTS OF THE INVENTION**

The main object of the invention is to create a new line of shavers by inventing a novel water proof Wet and Dry shaver with an easy clean out which is adaptable to most prior art rotating or oscillating type electric shavers with or without beard trimmer. Providing a new and economical way to drive the "electric " type shavers by replacing electricity as the energy source with water pressure. By using a small water turbine which is adaptable to most electric razors, this **Water Pressure Driven Wet and Dry Shaver** is a 100 % water proof, it is submergible.

The other object is to provide a clean out for the shaver by using a built in water jet, since there are no electric parts in the invention, no parts can be damaged in the apparatus by water.

By depressing the built in nozzle valve, the water flushes out all hair particles providing a novel way to achieve an easy hair clean out process. The water valve acts as a **Speed Control** by controlling the water flow, the user can adjust for the most desirable shaver speed.

# **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out and Speed Control**

**Inventor: Zoltan Egeresi, Santa Cruz, CA**

## **BRIEF DESCRIPTION OF THE DRAWING**

This invention has a unique, new way to drive the “electric” type shavers, **miniature water turbine**.

The **water pressure driven shaver** uses the water from the faucet in the bathroom or the shower outlet with a diverter to rotate the turbine.

On **Sheet 1** FIG. 1 shows the elected water turbine driven shaver (1) with an angled rotating blade assembly (8) and (9) with hair cleaning valve (14) with cleaning jet nozzle (10) and speed controller valve (62) and side mounted beard trimmer (33).

Water comes from the faucet from the diverter on FIG. 5 **sheet 2**, valve (62) controls the water flow and turbine (29) speed and this rotation drives the round shaver blade (9). Normally closed push button valve (14) when activated (depressed) flushes out the hair particles with water nozzle (10), debris flow out at opening (7) and opening (4). Hook (23) provides convenient hanging option if shaver is not in use.

FIG 7 and 8 on **sheet 3** shows the same turbine (29) driven shaver with beard trimmer (33) in more detail.

Turbine rotates the slanted rotating driving disk (36), moves cam follower (37) up and down which oscillates the moving cutting blade (33). When beard trimming is desired, blades are rotated outward 90 degree, stationary blade (42) is locked into the cutting position by leaf springs (38).

**Sheet 4** FIG 10 shows the vertical positioning of the shaver turbine in a flat, oscillating embodiment.

# **WATER PRESSURE DRIVEN WET AND DRY SHAVER WITH BEARD TRIMMER, WATER CLEANOUT AND SPEED CONTROL**

**Inventor: Zoltan Egeresi, 5500 Coast Rd. Santa Cruz, CA. USA**

## **DETAILED DESCRIPTION OF THE INVENTION**

This invention has a unique, new way to drive the “electric” type shavers, as many prior art types are available and adaptable to be used with this invention.

The new power source for the shaver is a **miniature water turbine** which drives the shaver and beard trimmer. The **water pressure driven shaver** uses the water as a “parasite” power source from the faucet in the bathroom or in the shower outlet or even in hotel rooms.

The **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean-out and Speed control** is a new way to shave, economical, waterproof, it has a water clean out built in nozzle flushing away hair cuttings.

**Sheet 1** of the drawing FIG. 1 shows the elected version of the invention, the water pressure driven shaver with an angled rotating blade assembly with side beard trimmer and hair clean out nozzle (10) and speed control valve (62).

Water comes from the faucet from the diverter on FIG. 5 on **sheet 2** diverter (73) is attached to the faucet by the treaded connector (18). When faucet is turned on diverter’s knob (53) turns on the water pressure than the water exits at barbed connector (20) via tube (72) to drive the turbine (29). The primary water volume controller is the diverter, by partial diverter opening the reduced water volume creates a slower revolution of the turbine FIG. 1 (29) rotation therefore reducing the shaver’s speed..

Water under pressure flows to the shaver trough the dual flexible hose under pressure, (72) return water line with low pressure (71) connects to barbed connector (24) and (25).

Incoming hose (13) conducts water into the shaver’s water volume controller valve(62) on FIG 1 and becomes a speed control for the shaver.

When speed control volume’s knob (2) is opened, washer ( 27) lets the water flows up to the turbine (29) trough pipe (3) and enters at connector (16). Water under pressure rotates the turbine’s blades(15), than used, clean water exits at outlet (26), barbed connector (25), outflow hose (71) to diverter (73) barbed outflow connector (21), out to sink at (22), reusable clean water.



Fig 3 shows the cut away view of the shaver turbine (29) with water inlet (16), outlet (26), driving gear (6), rotating blade (15), FIG 4 shows the top view of the turbine blade (15).

When the turbine (29) is rotating shaft (11) with gears (6) it transfers the rotational force to spin the Circular blades (9). Rotating shaft is held in place by spacers (5), shaft guide or bearings (12), gear ratio of coupling gears (6) selects predetermined shaver speed. The innovating way to clean out the cut off hair pieces normally closed push button valve (14) on FIG 1, 2, 6 is closed by spring (30), when activated by depressing button (31) valve cylinder (17) moves down to let the water flow up in pipe (13) to nozzle(10) than water flushes out the hair particles with nozzle(10), debris flow out at top opening (7) or if shaver is hanging on it's hook (23) any excessive water can drip out at the bottom opening (7).

Inter chamber opening (4) lets any water left in chambers to drip out. The circular blade assembly (9) is pressed against the screen of the shaver's head (8) with beard trimmer (33) in active position.

The turbine also rotates the slanted disk (36), it moves cam follower (37) up and down which oscillates the moving cutting blade (33). Oscillating cutting blades (33) move up and down in relation to the and stationary blades (42) which are tightly connected together (but movable) by rivets(41) FIG 8.

When beard trimming is desired, blades are rotated outward 90 degree, stationary blade (42) which is locked into the cutting position by the leaf springs (38) which is indented in the middle and attached to the body of the shaver (1), it is 90 degree offset compared to the beard cutting stationary blade(42), than gets locked into the cutting position by leaf springs (38).

Stationary blade (42) is closer to the body (1) of the shaver and in open position leaf spring (38) holds it in position while rivets(41) are loose enough to allow oscillating motion of blade(33). Blade (33) is attached to the body (1) by pins (40) loosely fitting in metal tube (43) on hinge (32) to allow up and down motion.

When beard trimmer is not in action, as shown on FIG 7, cam follower (37) is moved away from the rotating cam 36), in active position by pivoting the cutter assembly as shown on FIG 5 cam follower (37) is moved above the slanted cam surface (45) and pushed down by spring (58). Cam follower is pivoted by pin (34) which is attached to the body at location (47). Elongated slot (34) in cam follower (37) allows the extra horizontal motion when beard trimmer moves from closed to open position. Cam follower is attached to the movable trimmer (33) by pin (63).

**Sheet 4** FIG. 10 shows a sideways positioned shaver turbine (29) in a flat shaver embodiment (39) with oscillating shaving head (18). This is a flat shaver version of the elected main invention on Fig 1.

All major components are the same as in Fig 1, speed control is (62), by controlling water flow, turbine (29) speed is effected. Hair cleanout is provided by valve (14), when depressed, water under pressure flows out at nozzle (10 ) to flush our hair particles. The actual power transfer from the turbine is provided by an eccentric cam attached to the turbine (29), cam follower rod (69) oscillates as it pivots at (66) to move shaving blades (18) under the screen (65). Pin (67) holds the rod (69) together with blade (18).

The other end of the rod (69) is held to the cam (64) by spring (63).

FIG. 9 is the same shaver turbine as on FIG. 3, FIG. 3 transfers the rotating power by means of gears (6),

FIG. 9 uses an eccentric cam (64).